

CLAIMS

1. An electronic device comprising:
an electronic element; and
5 an interposer including an interposer
base to which the electronic element is joined,
and a plurality of post electrodes connected to
corresponding electrodes of the electronic
element;

10 wherein the electronic element and the
interposer base are integrated with each other
by being brought into direct contact with each
other, and the post electrodes are formed
directly on the corresponding electrodes of the
15 electronic element.

2. An electronic device comprising:
an electronic element; and
an interposer including an interposer
20 base to which the electronic element is joined,
and a plurality of post electrodes that are
disposed inside one or more through holes formed
in the interposer base and are connected to
corresponding electrodes of the electronic
25 element;

wherein a surface of the electronic
element and a surface of the interposer base are
integrated with each other by being brought into
direct contact with each other, and the post
30 electrodes are formed directly on the
corresponding electrodes of the electronic
element.

3. The electronic device as claimed in claim 1 or 2, wherein the electronic element and the interposer base are made of the same material.

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4. The electronic device as claimed in claim 1 or 2, wherein the electronic element and the interposer base are made of silicon.

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5. The electronic device as claimed in claim 1 or 2,

wherein a first insulation layer is formed at least in a position on the electronic element to be joined to the interposer base; and

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a second insulation layer is formed at least in a position on the interposer base to be joined to the electronic element.

6. The electronic device as claimed in claim 2, wherein the post electrodes are formed in the single through hole.

7. The electronic device as claimed in claim 1 or 2, wherein a recess is formed in the interposer base such that the electronic element is accommodated in the recess.

8. The electronic device as claimed in claim 1 or 2, wherein plural of the electronic elements are mounted to the interposer base.

9. The electronic device as claimed in claim 1 or 2, wherein a back surface of the

electronic element is joined to the interposer base.

10. The electronic device as claimed in
5 claim 1 or 2, wherein a sealing resin encapsulating the electronic element is disposed on the interposer base.

11. The electronic device as claimed in
10 claim 1 or 2, wherein the electronic element is a semiconductor chip.

12. The electronic device as claimed in
15 claim 1 or 2, wherein the electronic element is a passive element.

13. A method of manufacturing an electronic device, comprising:

an integrating step of integrating an
20 interposer base in which a through hole is formed and an electronic element with each other by bringing a surface of the interposer base and a surface of the electronic element into direct contact with each other;

25 a post electrode forming step of forming a post electrode inside the through hole and directly on an electrode of the electronic element after the integrating step;

30 a rewiring forming step of forming a rewiring layer electrically connected to the post electrode; and

an external connection terminal forming step of forming an external connection terminal

on the rewiring layer.

14. A method of manufacturing an electronic device, comprising:

5 a post electrode forming step of forming a post electrode directly on an electrode of an electronic element;

 an integrating step of integrating an interposer base in which a through hole is
10 formed and the electronic element with each other by bringing a surface of the interposer base and a surface of the electronic element into direct contact with each other after the post electrode forming step;

15 a rewiring forming step of forming a rewiring layer electrically connected to the post electrode; and

 an external connection terminal forming step of forming an external connection terminal
20 on the rewiring layer.

15. The method of forming an electronic device as claimed in claim 14, further comprising:

25 a protective layer forming step of forming a protective layer on the electronic element, the protective layer being made of an insulating material and adapted to hold the post electrode.

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16. An electronic device comprising:
an electronic element; and
an interposer to which the electronic

element is joined;

wherein the electronic element and the interposer are integrated with each other by being brought into direct contact with each
5 other.

17. The electronic device as claimed in claim 16,

wherein the electronic element is an
10 optical device; and

the interposer is provided with an optical waveguide optically connected to the optical device.